

IN THE CLAIMS:

Please add the following claims:

7. The method of claim 6 in which said step of sending a claim of leadership is implemented using a multicast message on said multicast network segment.

8. A system for determining a group leader among a group of servers comprising:

a set of participant servers including at least some servers capable of participating in electing a group leader;

a communication channel from each participant to each other participant;

a monitor process in each participant to determine which server is the current group leader; and

an election process in each participant to calculate a voting priority of said participant and to select a new group leader according to said voting priority, said election process triggered by said monitor process.

9. The system of claim 8 in which said monitor process further comprises:

a listener in each participant for determining how long since a group leader alive message has been heard on said communication channel;

a transmitter in each participant, operable in an elected group leader, that periodically signals each other participant who the current group leader is; and

a trigger adapted to detect that a group leader has not been heard from for a time longer than a threshold time, according to the period of said periodic signal.

10. The system of claim 9 in which said threshold time is configured such that a trigger will occur no less than five seconds after the last group leader alive message was received by said monitor process.

11. The system of claim 8 in which said election process further comprises a state machine adapted to transition from a temporary state of group leader unknown to a stable state of either group leader known or group leader is me, according to the following steps:

in said state of group leader unknown, if one or more group leader claim messages (LC) are received in which a received voting priority is greater than said calculated voting priority, then transition to a concession state and wait for a group leader alive message (LA); and if no LC is received before a period determined by said calculated voting priority, or no received voting priority is greater than said calculated voting priority, then transmit an LC including said calculated voting priority, and transition to a voting open state;

in said concession state, when an LA is received, transition to said group leader known state;

in said voting open state, if no LC or LA is received for a predetermined time interval, then transition to said group leader is me state and transmit an LA; and if one or more LC is received prior to said predetermined voting time interval, then transition to said group leader unknown state and transmit an LC; and if an LA is received, then transition to said group leader known state;

in said group leader is me state, periodically send an LA until an LC or LA is received, and then transition to said voting open state and send an LC; and

in said group leader known state, upon a trigger from said monitor process, transition to said group leader unknown state and transmit an LC;

whereby a participant having the highest calculated voting priority is elected group leader.

12. The system of claim 9 in which said predetermined voting time interval is no greater than 15 seconds.

13 The system of claim 8 in which said voting priority for each participant is determined dynamically according to at least one parameter selected from the set of: how recently was said participant the group leader, the number of servers known to said participant, the amount of resources available to such participant, reliability of the participant, the amount of recent information content the participant has acquired, and a user-specified priority factor.

14. A method for determining registration of members of a cluster of servers on a network segment comprising the steps of:

- (A) designating a group leader on said network segment;
- (B) each member sending a registration message to said group leader;
- (C) said group leader multicasting a registration report including an identifier corresponding to each registered member;
- (D) sending another registration message from any member receiving said registration report in which said member's corresponding identifier is missing;
- (E) repeating steps (C) and (D) until each said member receives a registration report including its own corresponding identifier as a registered member.

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15. The method of claim 14 in which said step of designating said group leader is carried out among a set of servers of said cluster according to a voting priority determined by at least some of said members from a set of dynamic parameters measured within themselves.

16. The method of claim 14 in which said step of multicasting said registration report occurs after a configurable interval has expired since the most recent registration request was received by said group leader.

17. The method of claim 14 in which said step (D) of sending another registration message occurs after a preconfigured interval, after receipt of a registration report or a registration request, comprised of a fixed interval and a random interval, said random interval being up to one second.

18. The method of claim 14 in which said registration requests include at least some identification information selected from the set of: a server's IP address, a server's name, a server's port number, and a secret key.

19. The method of claim 14 further comprising the steps of:

- processing said registration reports in said group leader to create a cluster report; and
- transmitting said cluster report to a network distribution server, whereby said cluster

reports are dynamically collected from all clusters in said network.

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canceled - 20. The method of claim 19 in which said cluster report further includes at least some group leader information selected from the set of: a list of registered members, identification information from at least some of said registered members, a network segment identifier, an IP address of said group leader, and a location parameter for said group leader.
